BRIEF COMMUNICATION

NOTES ON REPRODUCTION BY CAPTIVE *AMPHIBOLURUS NULLARBOR* (SAURIA: AGAMIDAE)

Two *Amphibolurus nullabor* Badham were collected 20 km E of Nullarbor Homestead, S.A. (31°28′S, 131°12′E), amongst bluebush (*Maireana sedifolia*) on the Nullarbor Plain (above the cliffs) by S. Doyle on 30.viii.1980. Abdomens of both females were distended and oviducal eggs were easily palpable. One specimen (S.A.Mus. R18170, SVL=140 mm) was preserved; dissection revealed six shelled eggs in the right oviduct and eight in the left. Because reproduction in this species has not been reported, the other lizard (SAM R18581, SVL=135 mm) was kept alive until parturition to document clutch size, egg sizes during incubation, hatching times and hatching sizes under laboratory conditions.

On 1–2.x.80, 12 eggs were found scattered in the vivarium enclosure. Each egg was measured, marked for identification, and placed on damp aquarium gravel in a clear plastic container loosely covered with plastic wrap. The container was placed on top of a refrigerator, near the back, where the temperature was 27–29°C [1-3]. Water was sprayed on the eggs weekly to prevent dessication. Three eggs became mouldy within the first month of incubation and were discarded. Two additional eggs were laid on 8.x.80; these were preserved in formalin (R18581-eggs).

Egg sizes measured at different times during incubation indicated an average increase in egg volume of 83% (computed as the volume of an ellipsoid from differences between initial and maximum egg sizes, Table 1). Most eggs decreased slightly in length and/or width just prior to hatching (compare size data for 11/13 and 12/14, Table 1).

Hatchlings emerged 18–27.xii.80, after 79–80 days incubation. Neonates remained in the eggs for 2–16 hr with only their heads protruding. Three lizards left the eggs with parts of the yolk sac still visible but the yolk was absorbed 2–3 hr after full emergence. Hatchlings ranged 33.6–37.3 mm (X=35.9±1.1 mm) SVL and 75.6–87.5 mm (X=81.9±4.3 mm) total length. There was no significant correlation (r=.04, n=9) between hatching SVL and maximum egg volume (computed as before from Table 1). Colour and pattern of the young (Fig. 1) were similar to that of adults [4-5].

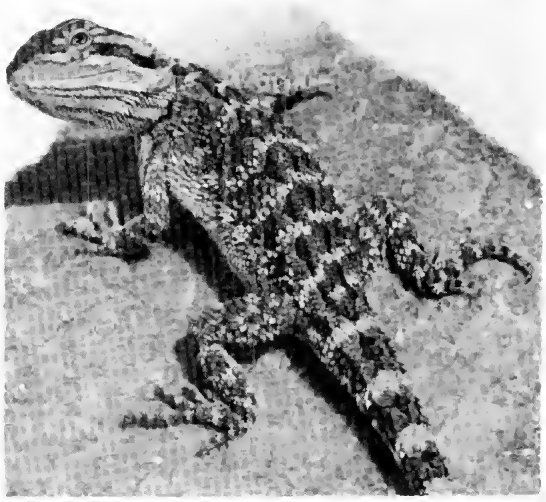

Fig. 1. Hatchling *Amphibolurus nullarbor*; SVL=37.3 mm.

TABLE 1. *Egg sizes (length and width in mm), hatching dates, and hatchling sizes (SVL and total length in mm) for a clutch of* Amphibolurus nullarbor *eggs.*

	Dates Measured (1980)				Dates hatched	Hatchling sizes	
Egg no.	10/1–2†	10/28	11/13	12/14*	(Dec. 1980)	SVL	TL
1	22.9 x 13.9	24.7 x 17.4	26.0 x 18.6	26.1 x 19.1	19	36.3	85.3
2	23.4 x 14.6	26.1 x 17.0	27.1 x 18.3	26.6 x 17.9	21	37.0	87.5
3	24.2 x 15.8	26.6 x 17.9	27.6 x 19.4	26.9 x 20.0	22	36.3	83.2
4	23.5 x 15.0	26.2 x 18.4	27.6 x 19.3	24.9 x 19.2	18	37.3	80.0
5	23.0 x 15.3	23.2 x 18.1	26.1 x 19.1	25.1 x 19.1	21	35.9	86.1
6	23.8 x 15.6	26.3 x 18.7	27.0 x 19.3	26.0 x 18.2	25	33.6	75.6
7	23.8 x 14.4	26.0 x 18.0	26.7 x 18.7	26.6 x 18.9	27	35.6	76.0
8	22.9 x 16.1	24.8 x 17.9	25.6 x 18.7	24.2 x 18.9	24	35.0	80.2
9	24.0 x 14.2	24.8 x 17.9	26.4 x 18.6	25.8 x 18.4	20	36.1	82.8
X ± SD	23.5 15.0 ±0.5 ±0.8	25.0 17.9 ±1.1 ±0.5	26.7 18.9 ±0.7 ±0.4	25.8 18.9 ±0.9 ±0.6		35.9 ±1.1	81.9 ±4.2

† Dates when eggs laid.

* Note that all eggs except No. 1 decreased in length and/or width just prior to hatching.

These observations are similar to those reported for *A. barbatus*, which most resembles *A. nullarbor*, morphologically[4]. Eggs of *A. barbatus* increased 90% by volume from parturition to maximum size, under incubation conditions similar to those described here[6]. Also *A. barbatus* eggs shrank slightly just prior to hatching, and hatchlings remained motionless in ruptured eggs for several hours[6]. Furthermore, hatching times (76–84 days) for a clutch of *A. barbatus* eggs from Queensland, incubated at a similar temperature, were similar to the *A. nullarbor* data[6].

In S.A. populations of both species are allopatric[5]. Parturition seems to occur slightly earlier for *A. nullarbor* (early October) than for *A. barbatus* (late October, with most clutches reported in November-December[2, 7]). This difference may be related to the more northerly distribution of *A. nullarbor* populations in S.A., which experience the seasonal effects of exogenous stimuli (longer photoperiod and increasing temperatures) favourable to the onset of gonadal cycles[8] earlier than populations of *A. barbatus*. Clutch sizes are much smaller for *A. nullarbor* (14–16 eggs for the two females examined) than for *A. barbatus*, which lay 15–35 eggs per clutch ($X=25\pm6$ for six observations from S.A.[2, 8], and often have two clutches per season[2, 6, 8]. Snout-vent lengths for hatchling *A. barbatus* average 5 mm larger than those of *A. nullarbor*. These differences are believed to be related to differences in body size of adults (maximum SVL 141 mm for *A. nullarbor* compared with 220 mm in *A. barbatus*)[5].

Roman Ruehle photographed the hatchling *A. nullarbor*.

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[5]**Houston, T. F.** (1979). 'Dragon lizards and goannas of South Australia.' S. Aust. Mus. Spec Ed. Bull. Ser., 84 pp.

[6]**Bustard, H. R.** (1966). Brit. J. Herpetol., 3: 252–259.

[7]**Licht, P.** (1973). Comp. Biochem. Physiol. 45A: 7–20.

[8]**Mitchell, F. J.**, unpublished data.

JULIA SMITH, 7 Jeffrey Road, Vale Park, S. Aust. 5081 and TERRY D. SCHWANER, South Australian Museum, North Terrace, Adelaide, S. Aust. 5000.